

**IN THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

- 1-14. (Cancelled).
15. (New) A metal filling method comprising steps of:  
  
forming a non-through hole which extends from a first surface toward an opposite surface of a work piece;  
  
forming a metal layer on at least an inner peripheral surface portion of the non-through hole adjacent to the first surface of the work piece;  
  
filling the non-through hole with molten metal and allowing the molten metal to solidify; and  
  
removing part of the work piece such that the solidified metal is exposed through the opposite surface of the work piece.
16. (New) The metal filling method according to claim 15, wherein the non-through hole is filled by immersing the work piece in a molten metal.
17. (New) The metal filling method according to claim 16, wherein the filled metal is solidified by discharging the work piece from the molten metal.
18. (New) The metal filling method according to claim 15, wherein the work piece comprises a substrate.
19. (New) The metal filling according to claim 15, wherein part of the work piece is removed by polishing.

20. (New) The metal filling method according to claim 15, wherein the solidified metal comprises an external section which protrudes from the first surface of the work piece.

21. (New) The metal filling according to claim 20, wherein the external section comprises a bump.

22. (New) A metal filling method comprising steps of:  
forming a through hole which extends through a work piece from a first surface toward an opposite surface thereof;  
forming a metal layer on at least an inner peripheral surface portion of the through hole adjacent to the first surface of the work piece;  
closing an opening of the through hole in the opposite surface of the work piece;  
filling the through hole with molten metal and allowing the molten metal to solidify; and  
opening the closed opening of the through hole such that the solidified metal is exposed through the opening of the through hole.

23. (New) The metal filling method according to claim 22, wherein the through hole is filled by immersing the work piece in a molten metal.

24. (New) The metal filling method according to claim 23, wherein the filled metal is solidified by discharging the work piece from the molten metal.

25. (New) The metal filling method according to claim 22, wherein the work piece comprises a substrate.

26. (New) The metal filling method according to claim 22, wherein the opening of the through hole is closed using a sealing material.

27. (New) The metal filling method according to claim 22, wherein the solidified metal comprises an external section which protrudes from the first surface of the work piece.

28. (New) The metal filling method according to claim 27, wherein the external section comprises a bump.